

REMARKS

Claims 1, 3, 5-15 are pending in the application by entry of the amendment. By this amendment, claims 1, 3, 5 and 6 are amended, claims 2 and 4 are canceled and claims 7-15 are added for the Examiner's consideration. The above added claims do not add new matter to the application and are fully supported by the specification. For example, support for the added claims find support at pages 11-25 and Figures 3-15, and, in particular pages 26, 27 and Figures 6 and 8, for example. The specification is also amended to correct minor typographical errors. Reconsideration of the rejected claims in view of the following remarks is respectfully requested.

Allowed Claims

Applicants appreciate the indication that claims 5 and 6 contain allowable subject matter. Claims 5 and 6 are amended into independent format to place these claims in immediate condition for allowance. However, Applicants submit that all of the claims are in condition for allowance for the following reasons.

35 U.S.C. §102 Rejection

Claims 1-3 were rejected under 35 U.S.C. §102(b) for being anticipated by U. S. Patent No. 5,920,139 issued to Fujiwara et al. This rejection is respectfully traversed.

As discussed in the background section of the application, in conventional commutator motors, the stator yoke is structured by stacking the steel plates on each other. However, because the conventional permanent magnet commutator motor is small in size, there is a fear

that the steel plates are deformed when concaves and convexes are formed on the steel plates for caulking, and it is actually impossible to fix the steel plates by caulking. Also, because the field magnet is disposed on the radially outer side of the stator yoke, the magnetic flux cannot be effectively utilized, which lowers performance of the motor.

The invention provides for caulking between a plurality of plate-like annular bodies or arcuate bodies coaxially stacked in the axial direction of the stator yoke. The thickness of the annular body or arcuate body in the axial direction can be set to a minimum unit, and the number of stacked annular bodies or arcuate bodies is set to a desired number, thereby being capable of arbitrarily setting the length of the stator yoke in the axial direction. The plurality of plate-like annular bodies or the plate-like arcuate bodies adjacent to each other in the stacked direction are fixedly connected to each other by caulking, e.g., reference numeral 11D. At least one pair of convex portions protrude radially inwardly from the inner peripheral surface of the stator yoke for retaining the field magnet between the convex portions

These features are not shown in Fujiwara. In Fujiwara, the plates are stacked upon one another. In one embodiment, the stator core plate has magnet insertion holes for the magnet motor (FIG. 8B); whereas, in another embodiment, the stator core plate does not have magnet insertion holes (FIG. 8C). As discussed at col. 7, lines 31-40:

[t]he magnet motor stator 30 as shown in FIG. 8C is formed by alternately laminating each a plurality of stator core plates 32 having no magnet insertion hole as shown in FIG. 8A

and a plurality of stator core plates 31 having magnet insertion holes 50, 51, 52 and 53 as shown in FIG. 8B.

At this point, the laminating portions of the stator core plates 32 not having a magnetic insertion hole 50, 51, 52 or 53 are arranged at the upper and lower ends of the stator.

However, there is simply no disclosure, whatsoever, that at least one pair of convex portions protrude radially inwardly from the inner peripheral surface of the stator yoke for retaining the field magnet between the convex portions.

Accordingly, Applicants respectfully request that the rejection over claims 1-3 be withdrawn.

35 U.S.C. §103 Rejection

Claim 4 was rejected under 35 U.S.C. §103(a) for being unpatentable over Fujiwara in view of Asao. This rejection is respectfully traversed in view of the cancellation of claim 4.

Added Claims

Claims 7-15 are added for the Examiner's consideration. Applicants submit that claims 7-15 contain allowable subject matter and are distinguishable over the art of record. For example, the newly written independent claims include allowable subject matter, including by example,

- (I) Caulking corresponding to a fixing position to which the field magnet is fixed.

- (II) Grooves formed on an inner peripheral surface of the stator yoke.
- (III) At least one concave/convex portion disposed at an outer periphery of the stator yoke, where a position of the at least one concave/convex portion corresponds to a center of the field magnet.

Additionally, the dependent claims are depending from distinguishable bases claims and should be in allowable condition.

Other Matters

The specification has been amended in order to correct minor typographical errors. No new matter has been added.

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CONCLUSION

In view of the foregoing remarks, Applicant submits that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicant hereby makes a written conditional petition for extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 23-1951.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Andrew M. Calderon', with a long horizontal flourish extending to the right.

Andrew M. Calderon
Registration No. 38,093

McGuireWoods, LLP
Suite 1800
1750 Tysons Blvd.
McLean, VA 22102
(703) 712-5426